Description of three new muricids (Gastropoda: Muricidae: Muricinae) from the Philippines and Fiji

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ABSTRACT

Three new species are described from the Philippines and Fiji, one in the genus *Chicomurex* Arakawa, 1964 and two in *Chicoreus* (*Triplex*) Perry, 1911. *Chicomurex excelsus* new species from the Philippines is compared with *C. gloriosus* (Shikama, 1977), *C. pseudosuperbus* Houart, Moe, and Chen, 2015, and *C. venustulus* (Rehder and Wilson, 1975), species that are or were confused with the new species. *Chicoreus* (*Triplex*) *kaitomoei* new species from Fiji is compared with *C. aculeatus* (Lamarck, 1822), *C. rossiteri* (Crosse, 1872), *C. nobilis* Shikama, 1977, *C. ryukyuensis* Shikama, 1978, and *C. cloveri* Houart, 1985; two of these were confused with the new species by recent authors and the others have a few similar shell characters. *Chicoreus* (*Triplex*) *aquilus* new species from Fiji is compared with *C. rubescens* (Broderip, 1833), *C. strigatus* (Reeve, 1849), *C. paini* Houart, 1983, and *C. dodongi* Houart, 1995, species with an approximately similar size, a similarly narrow shell, high spire, moderately long siphonal canal, and small aperture.

Additional Keywords: Neogastropoda, *Chicomurex*, *Chicoreus* (*Triplex*), Philippine Islands, Fijian Archipelago, new species

INTRODUCTION

The genus *Chicomurex* Arakawa, 1964, which is restricted to the Indo-West Pacific, was recognized as a separate genus by Houart (1992: 115) based on shell and radular characters. The genus then included seven species: *C. elliscrossi* (Fair, 1974), *C. laciniatus* (Sowerby II, 1841), *C. problematicus* (Lan, 1981), *C. protoglobosus* Houart, 1992, *C. superbus* (Sowerby III, 1889), *C. turschi* (Houart, 1981), and *C. venustulus* (Rehder and Wilson, 1975). Five additional species were described by Houart (2013) and Houart et al. (2014; 2015). Houart et al. (2014) considered *C. problematicus* a junior subjective synonym of *C. superbus* and Houart et al. (2015) reinstated the name *C. gloriosus* (Shikama, 1977). The genus thus currently contains 13 Recent species: *C. elliscrossi* (Fair, 1974), Japan; *C. globus* Houart, Moe, and Chen, 2015, New Caledonia, Vanuatu, to Okinawa, Japan; *C. gloriosus* (Shikama, 1977), Indo-West Pacific; *C. laciniatus* (Sowerby II, 1841), Indo-West Pacific; *C. lani* Houart, Moe, and Chen, 2014, northeastern Australia, New Caledonia, Vanuatu, to southern Japan; *C. protoglobosus*, New Caledonia; *C. pseudosuperbus* Houart, Moe, and Chen, 2015, Queensland, Australia, New Caledonia, to southern Japan; *C. ritae* Houart, 2013, Philippines; *C. rosadoi* Houart, 1999, Mozambique; *C. superbus*, Queensland, Australia to southern Japan; *C. tagaroae* Houart, 2013, Philippines; *C. turschi*, Indo-West Pacific; and *C. venustulus*, Marquesas. A fourteenth species is here described based on materials from the Philippines and the Marshall Islands. A molecular phylogeny of the genus *Chicomurex* is currently being prepared (Chen et al., in prep.). For those species with data available, including the recently described *C. lani*, *C. pseudosuperbus*, and *C. globus*, molecular results agree well with morphological identification in terms of species-level separation, indicating that the shell characters used to separate *Chicomurex* species are effective and accurate (C. Chen, pers. comm.).

Triplex Perry, 1811 was considered separate from *Chicoreus* sensu stricto by Houart (1992: 34) and was then used as subgenus. It currently includes more than 50 species in the Indo-West Pacific. Two additional species from Fiji are described here, in two different groups as established by Houart (1992). Houart and Héros (2008) estimated the number of muricids in Fiji to be 95, and the current paper brings that number to 97. One of the two new species described herein from Fiji has previously been misidentified as *Chicoreus* (*Triplex*) *nobilis* Shikama, 1977 by Houart (1992: 100 [in part], fig. 210 [only]) and Houart and Héros (2008: 443, fig. 11). It is important, however, to note that the typical *C. nobilis* does indeed also occur in Fiji (Figure 28).

MATERIALS AND METHODS

Most of the material studied here comes from the authors' private collections. The two new species of *Chicoreus*

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were collected a few years ago in Suva, Fiji and the new species of *Chicomurex* from the Philippines was regularly misidentified as *C. gloriosus* (Shikama, 1977) or *C. venustulus* (Rehder and Wilson, 1975) by collectors in the Philippines. Additional specimens originate from materials gathered during two cruises organized by MNHN and IRD in southern Viti Levu (SUVA 2 and SUVA 4 cruises) in 1998 and 1999. The SUVA 2 Cruise was carried out in the Fijian Archipelago from 10–23 October 1998. Dredging, trawling, and Smith-McIntyre grab-sampling methods yielded 85 samples in the South and West lagoon of Vitu Levu Island. The SUVA 4 Cruise was also carried out in the Fijian Archipelago from 19–27 September 1999. The purpose of that mission was to complete the benthos sampling started in 1998. Three types of dredging and trawling methods, including Smith-McIntyre grab, Warén dredge and beam trawl, were used for 39 stations. Sampling was carried out in Suva Harbor, Lauthala Bay, and Rewa River, others in Beqa Lagoon and Pacific Harbor Bay.

The characters used to describe the shell morphology herein include the general aspect of the shell, its shape and size, color, shape of the spire and number of protoconch and teleoconch whorls, features of the protoconch, shape of the teleoconch whorls and features or form of the suture and of the subsutural ramp, of axial and spiral sculpture, the aperture, and siphonal canal. Unless otherwise mentioned, the species descriptions are based on the holotype and the paratypes. The method for determining diameter, height and counting the number of protoconch whorls is shown in Figure 1. We used the same method as that illustrated and used by Bouchet and Kantor (2004).

The bathymetric range given here is provided using the inner values of the recorded depth: the largest value of the minimum values and the lowest value of the maximum values of all the recorded ranges. This is the same as the concept of "confirmed bathymetric range" (Harasewych, 2011).

Abbreviations of repository collections are: **CC:** collection of Chong Chen; **CM:** collection of Christopher Moe; **IRSNB:** Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium; **MNHN:** Muséum national d'Histoire naturelle, Paris, France; **RH:** collection of Roland Houart; **SJ:** collection of Scott Johnson. Other abbreviations used in the text are: **DW:** Warén Dredge; **IRD**: Institut de Recherche pour le Développement, France; **ad:** adult specimen; **juv:** juvenile specimen; **dd:** empty shell; **lv:** live-collected specimen.

Terminology Used to Describe Spiral Cords and Apertural Denticles (after Merle 2001 and 2005) (Figures 2–6) (Terminology in parentheses: erratic feature): **Spiral cords: ab:** abapical (or abapertural); **abis:** abapical infrasutural secondary cord (on subsutural ramp); **ABP:** abapertural primary cord on the siphonal canal; **abs:** abapertural secondary cord on the siphonal canal; **ad:** adapical (or adapertural); **adis:** adapical infrasutural secondary cord (on subsutural ramp); **ADP:** adapertural primary cord on the siphonal canal; **ads:** adapertural secondary cord on the siphonal canal; **IP:** infrasutural primary cord (primary cord on subsutural ramp); **MP:** median primary cord on the siphonal canal; **ms:** median secondary cord on the siphonal canal; **P:** primary cord; **P1:** shoulder cord; **P2–P6:** primary cords of the convex part of the teleoconch whorl; **s:** secondary cord; **s1–s6:** secondary cords of the convex part of the teleoconch whorl (example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.); **t:** tertiary cord. **Aperture: D1 to D6.** Abapical denticles; **ID.** Infrasutural denticle.

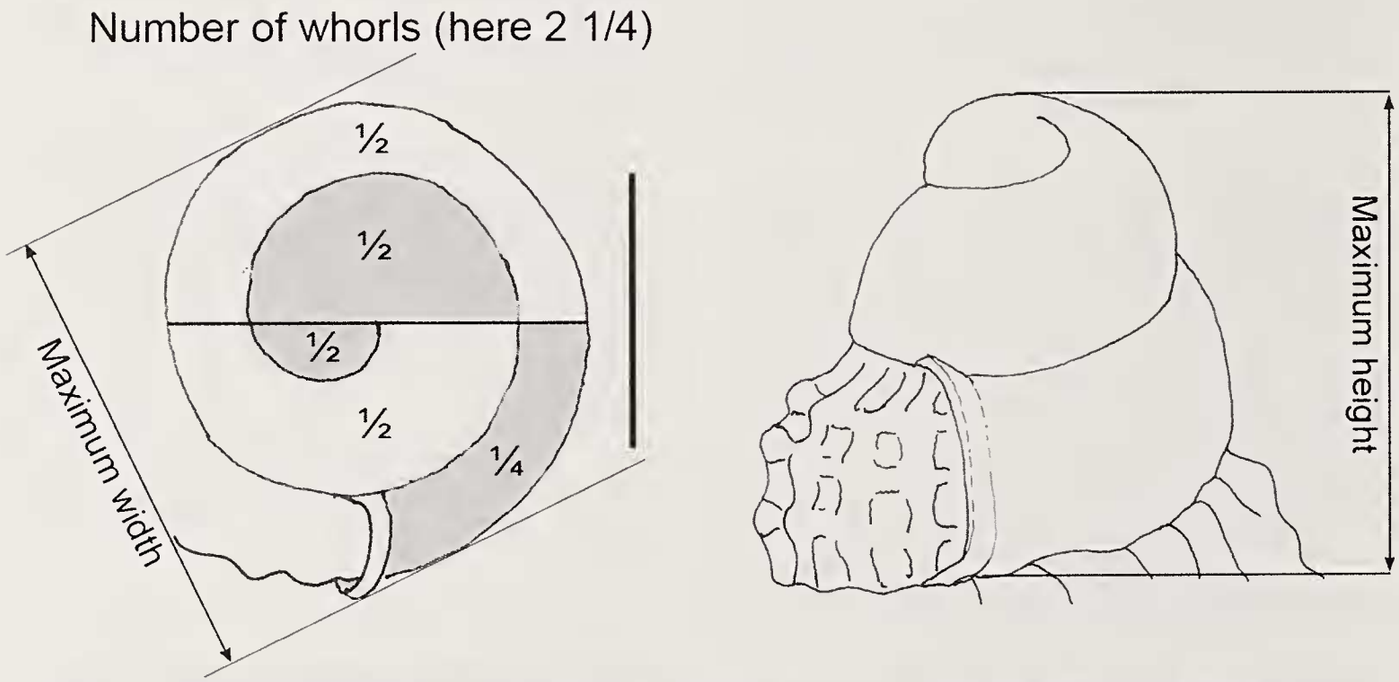
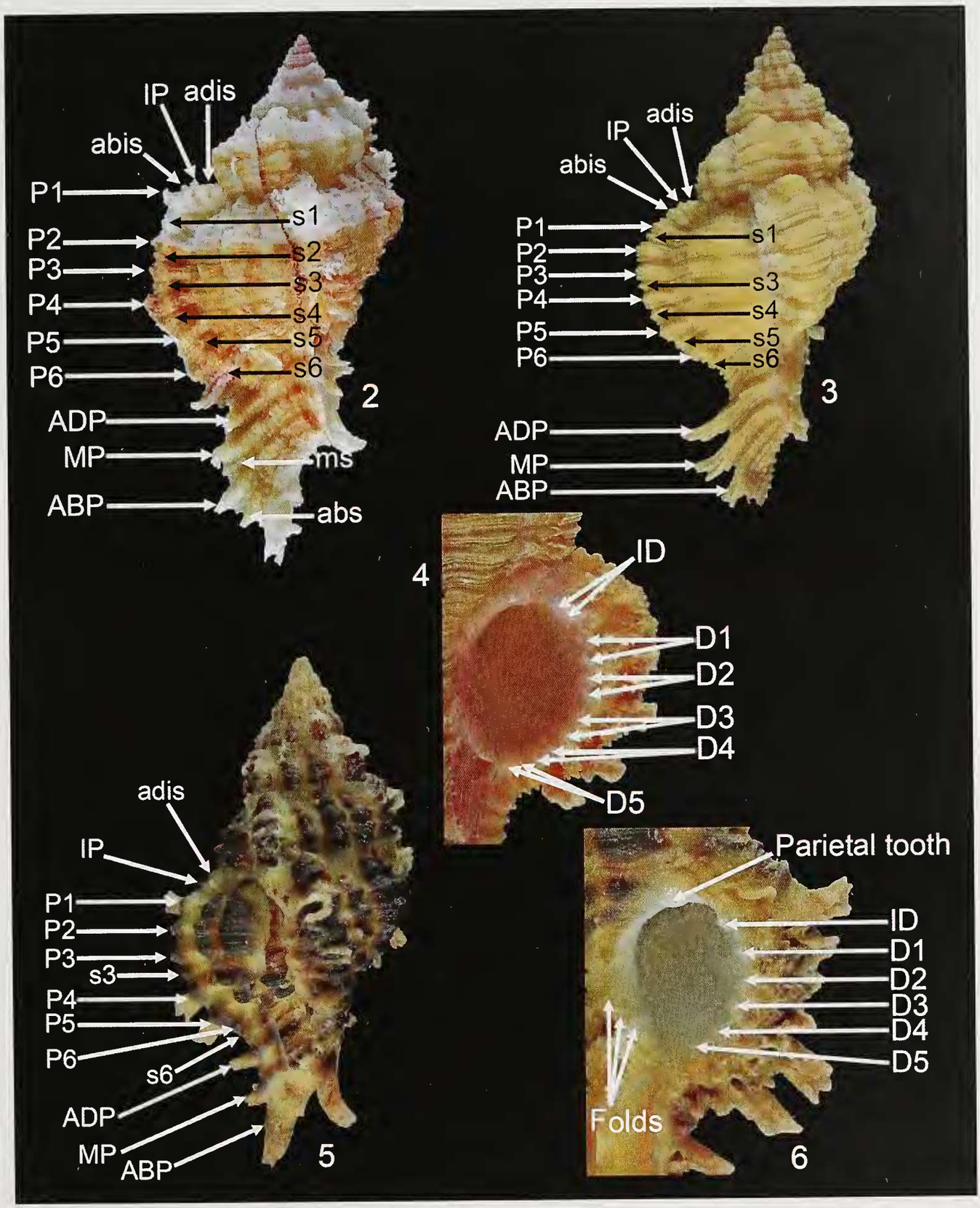


Figure 1. Method for determining diameter, height and counting the number of protoconch whorls Scale bar = 500 µm.



Figures 2–6. Spiral cords and aperture morphology. **2. *Chicomurex excelsus* new species.** Holotype, MNHN IM-2000-33591. **3–4. *Chicoreus (Triplex) kaitomoei* new species.** Holotype, MNHN IM-2000-33592. **5–6. *Chicoreus (Triplex) aquilus* new species.** Holotype MNHN IM-2000-33593. (See Materials and Methods for abbreviation explanations.)

SYSTEMATICS

Family Muricidae Rafinesque, 1815
Subfamily Muricinae Rafinesque, 1815

Genus *Chicomurex* Arakawa, 1964

Type Species: *Murex superbus* Sowerby, 1889, Recent, Philippines (original designation)

***Chicomurex excelsus* new species**
(Figures 2, 7–15)

Chicomurex venustulus.—Merle et al., 2011: pl. 77, fig. 16 (only) (not *Chicoreus venustulus* Rehder and Wilson, 1975).

Description: Shell medium-sized for genus, up to 58.3 mm in length (paratype CM). Length/width ratio 1.8–2.1. Lanceolate, angular, broadly ovate, weakly spinose, squamous and nodose. Lightly built. Subsutural ramp narrow, weakly sloping, convex. Protoconch and first and second teleoconch whorls light pink. Subsutural ramp to P2 cream or light tan with traces of light brown on spiral cords; orange or dark brown between P2 and P6 or between P2 and ABP; P6 and s6 occasionally white. One paratype (RH) creamy white with some orange spots between P2 and s6, s6 light orange; creamy white between s6 and tip of siphonal canal. Aperture white with narrow brown line on outer apertural edge, line often extending on right edge to tip of siphonal canal; ventral left part of siphonal canal white. Spire high with 2+ protoconch whorls (partly broken in a paratype, eroded or broken in other specimens) and up to 7 broad, weakly convex, angular, weakly shouldered, spinose and nodose whorls. Suture adpressed. Protoconch partly preserved in a paratype (Figure 14, CM) with narrow abapical keel on last whorl, and penultimate whorl partly broken. Axial sculpture of teleoconch whorls consisting of low, strong, narrow, rounded, nodose ribs and high, narrow, rounded, weakly spinose varices. First whorl with 10 or 11 axial ribs, starting varices with 2 or 3 intervariceal ribs from second to penultimate whorl; ribs increasing in strength abapically. Last whorl with 3 narrow, rounded, weakly spinose varices, webbed on abapical part of whorl, webbing extending on siphonal canal. Intervarical sculpture of last whorl consisting of two moderately narrow, high axial ribs with higher node close to preceding varix. Spiral sculpture of primary, secondary and tertiary nodose cords. Primary cords moderately high and broad; P4–P6 slightly broader and higher, followed by ADP, MP and ABP on siphonal canal, similar in strength to P4–P6; ADP spine occasionally shorter. Secondary cords narrow, except s6 of similar in strength to P1–P3. Tertiary cords very narrow. Aperture relatively small, ovate. Columellar lip narrow, smooth abapically, with weak folds adapically and low parietal tooth. Rim partially erect, a small portion adherent at adapical extremity. Anal notch shallow, broad. Outer lip erect, crenulated, with very weak, narrow lirae within. Siphonal canal long, 40–43% of shell length, broad, weakly dorsally recurved, narrowly open, with dorsally recurved, webbed ADP, (ads), MP, ms, ABP and bs spines. Operculum light or dark brown, ovate with apical nucleus.

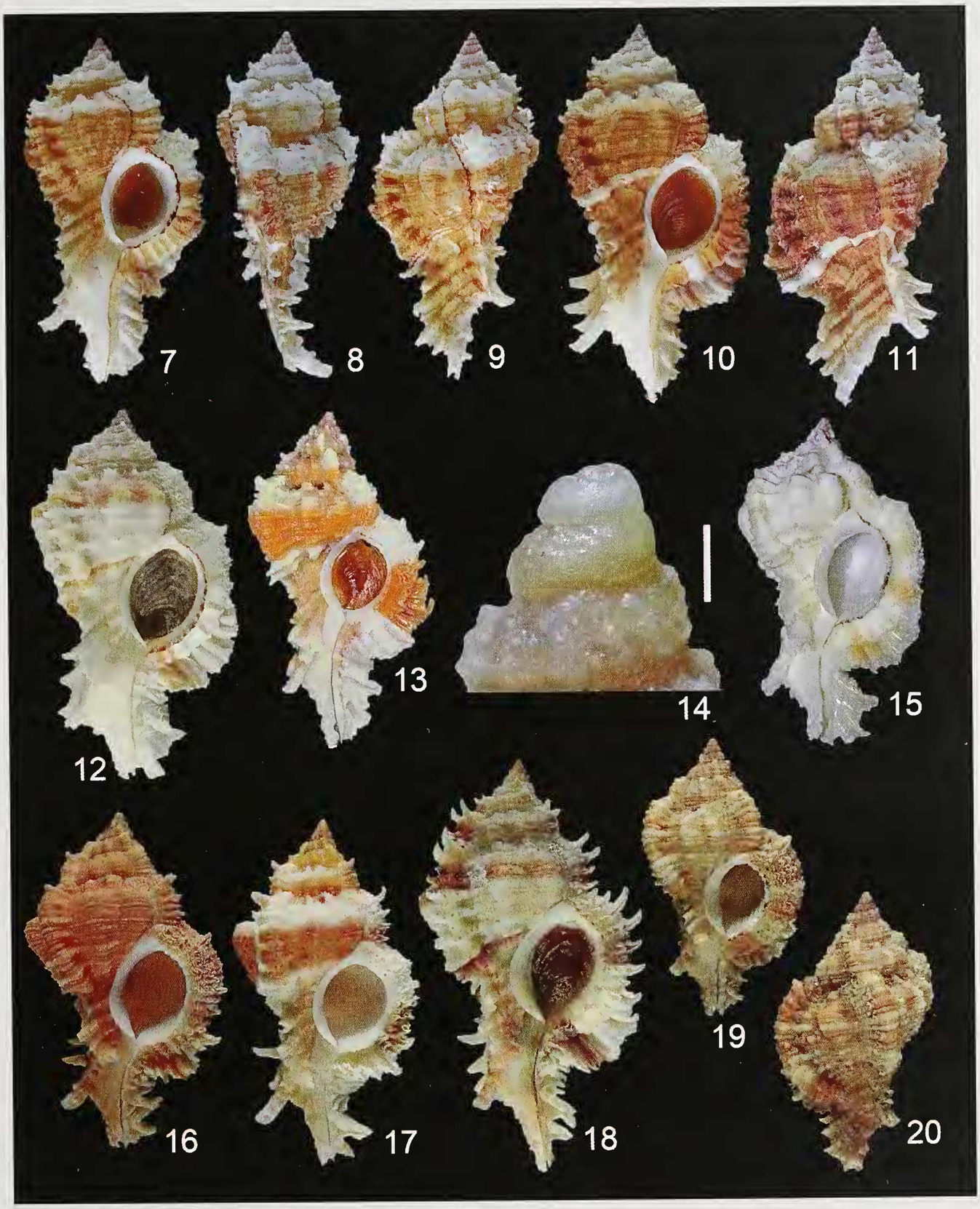
Type Material: Holotype: MNHN IM-2000-33591, from type locality; **paratypes:** Philippines, Southwest of Bohol, Balicasag Island, by tangle nets, 150 m, lv, ad, 1 RH; Philippines, Bohol Island, 200 m, lv, ad, 1 CM; Philippines, Balut Island, by tangle nets, 200 m, lv, ad, 1 CC; Philippines, Balut Island, Tinina, by tangle nets, 150–300m, lv, ad, 1 CC.

Type Locality: Philippines, Bohol Island.

Other Material Examined: Kwajalein Atoll, Marshall Islands, 60 m, dead in octopus piles on the Oceanside drop off near Enubuj (Carlson) Island, SJ (10 dd, ad) CM (3 dd, ad).

Distribution: Southern Philippines Islands and Kwajalein Atoll, Marshall Islands, living at 150–200 m.

Remarks: A paratype (CM) of *Chicomurex excelsus* new species has a partly preserved protoconch with intact last and partly intact penultimate whorls. The morphology of these whorls and the presence of a narrow keel on the abapical part of the last whorl (Figure 14) suggest a conical protoconch as observed in a few other species, namely *C. laciniatus*, *C. superbus*, *C. venustulus*, *C. gloriosus*, *C. lani*, *C. globus*, and *C. pseudosuperbus*. All the other *Chicomurex* species have a rounded, paucispiral protoconch. *Chicomurex excelsus* new species is closest to *C. gloriosus* (Figures 16–17) but consistently differs by having a lower spire in relation to the shell length (approximately 35% of total shell length, as opposed to 38–40% in *C. gloriosus*) and a longer siphonal canal (40–43% of total shell length compared to 35–40% in *C. gloriosus*). It also has a less rounded, more angular last teleoconch whorl, narrower axial varices, lower intervarical axial nodes, a less scabrous shell and webbed spines on the siphonal canal whereas these are never webbed in *C. gloriosus*. A recently described species, *C. pseudosuperbus* (Figure 18), is also similar, but *C. excelsus* new species differs by having a smaller shell compared to the number of teleoconch whorls, a less rounded teleoconch whorl, a slightly lower spire, and a less scabrous shell with strongly webbed spines on the siphonal canal instead of separate long spines as in *C. pseudosuperbus*. *Chicomurex excelsus* new species further differs from *C. venustulus* (Figures 19–20), a species currently known only from the Marquesas, by having a larger shell, reaching almost twice the length of an adult *C. venustulus* with a same number of teleoconch whorls. *Chicomurex excelsus* new species also has a less rounded last teleoconch whorl, a less scabrous shell and a comparatively longer siphonal canal. A specimen of *Chicomurex excelsus* new species from the Kwajalein Atoll (Figure 15) has a broader last teleoconch whorl



Figures 7–20. *Chicomurex* species. **7–15. *Chicomurex excelsus* new species. 7–9.** Holotype, MNHN IM-2000-33591, Philippines, Bohol Island, 54.8 mm. **10–11, 14.** Paratype CM, Philippines, Bohol Island, 200 m, 58.3 mm. **12.** Paratype RH, Philippines, Southwest of Bohol, Balicasag Island, by tangle nets, 150 m, 55.3 mm. **13.** Paratype CC, Philippines, Balut Island, by tangle nets, 46.1 mm; **15.** CM, Marshall Islands, Kwajalein Atoll, 43.1 mm. **16–17.** *Chicomurex gloriosus* (Shikama, 1977), Balut Island, Philippines (**16.** 49.1 mm; **17.** 50.9 mm). **18.** *Chicomurex pseudosuperbus* Houart, Moe, and Chen, 2015, RH, Philippines, Bohol, Kalituban Iisland, tangle nets, 90 m, 71.6 mm. **19–20.** *Chicomurex venustulus* (Rehder and Wilson, 1975), RH, Marquesas, Nuku Hiva, 104–109 m, 32.4 mm. Scale bar = 500 μm.

compared to other specimens but all other features match with the above description.

Etymology: Latin *excelsus*, high, lofty, distinguished: named for the distinctive and beautiful shell morphology.

Japanese Name: *"Furisode-Senju,"* フリソデセンジュ, after the "swinging-sleeves" style kimono known as "furisode", which resembles the webbed siphonal canal in this species. "Senju" is a general vernacular term for muricids with spinous and frondose varices, literally meaning "thousand-hands".

***Chicoreus (Triplex) kaitomoei* new species**
(Figures 3–4, 21–26)

Chicoreus aculeatus.—Cernohorsky, 1967a: 117, pl. 14, fig. 5, text fig. 1; Cernohorsky, 1967b: 118 (in part), pl. 25, fig. 147; Cernohorsky, 1985: 47 (in part), fig. 3 (only) (not *Murex aculeatus* Lamarck, 1822).

Chicoreus (Triplex) nobilis.—Houart, 1992: 100 (in part), fig. 210 (only); Houart and Héros, 2008: 443, fig. 1I (not *Chicoreus nobilis* Shikama, 1977).

Description: Shell small for genus, up to 32.8 mm in length (paratype CM). Length/width ratio 1.7–2.0. Slender, lanceolate, broadly ovate, heavy, weakly spinose and nodose. Subsutural ramp narrow, weakly sloping, convex. Shell entirely light-orange. Aperture white within; columellar lip and narrow band in outer lip pink. Spire high with 2 protoconch whorls and teleoconch up to 7 broad, strongly convex, strongly shouldered, nodose whorls. Suture adpressed. Protoconch small, bulbous. Whorls rounded, smooth, last whorl flattened, width and height 700–800 μm. Terminal lip delicate, thin, erect, curved. Axial sculpture of teleoconch whorls consisting of ribs and varices. First whorl with 12–14 narrow ribs, second whorl starting varices with 2 or 3 broad intervariceal ribs. Third to last whorl with 3 varices and 2 intervariceal ribs. Varices increasing obviously in width and strength abapically. Last whorl with 3 broad varices and two broad intervariceal ribs. Spiral sculpture of primary, secondary, tertiary cords and numerous squamous threads. First to third whorl with visible, narrow P1–P3 or P1–P4, starting IP from second whorl. Spiral cords increasing in width from fourth whorl, then splitting in several threads. Top thread weakly broader with two smaller threads on each side. Other spiral sculpture of narrow, secondary cords, occasionally with additional tertiary cords. P2–P5 of same strength; P1 and P6 narrower. ADP, MP, and ABP cords also topped with several threads, giving rise to long, frondose spines. Aperture large, ovate. Columellar lip narrow, weakly flaring, smooth with low parietal tooth at adapical extremity. Rim partially erect, a small portion adherent to adapical extremity. Anal notch narrow, moderately deep. Outer lip erect, crenulated, with strong, narrow, split denticles extending on a short distance within as narrow lirae: ID, D1–D5 split. Siphonal canal moderately long, 36–38% of shell length, narrow, strongly dorsally recurved at tip, narrowly open, with 3 frondose, abapically bent, long spines, situated on abapical part of canal, gradually decreasing in length abapically. Operculum light or dark brown with apical nucleus.

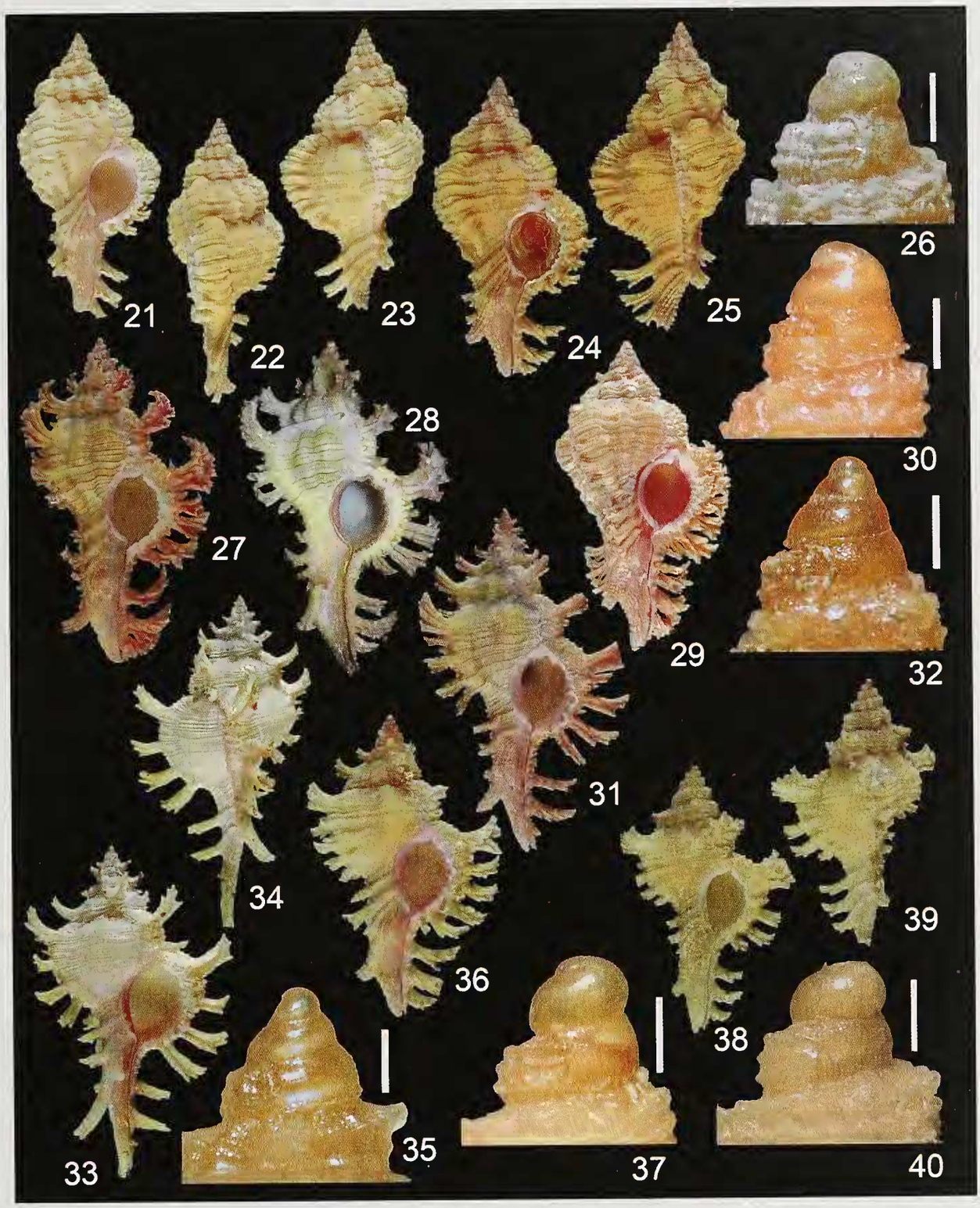
Type Material: Holotype: MNHN IM-2000-33592lv, ad (from type locality); **paratypes:** lv, juv, 1 IRSNB IG. 33491/MT. 3596; lv, ad, 5 CM(from type locality); lv, juv, 1 CC (from type locality); Fiji, Viti Levu, Mbenga Island, 9 m, under coral rubble, 2 lv, ad, 1 lv, juv (RH); SUVA 4: Fiji, Viti Levu, stn DW08, 18°22′ S, 178°02′ E, 28–30 m, juv, lv and dd, 8 MNHN IM-2008-991.

Type Locality: Fiji, southern Viti Levu, Suva area, drop off in 31–40 m.

Other Material Examined: SUVA 2: Fiji, southern Viti Levu, stn DW 62, 17°48′ S, 177°13′ E, 32 m, 1 dd, MNHN IM-2008-992; SUVA 4, Fiji, Viti Levu, stn DW 22, 18°27′ S, 177°59′ E, 32–36 m, 1 lv, juv, MNHN IM-2008-990; stn DW 26, 18°24′ S, 178°05′ E, 42–43 m, 1 dd, MNHN IM-2008-989 (illustrated in Houart and Héros, 2008: fig. 1I, as *Chicoreus nobilis*).

Distribution: Fijian Archipelago, southern Viti Levu, Living at 9–30 m.

Remarks: *Chicoreus (Triplex) kaitomoei* new species is here included in a group numbered "group 7" in Houart (1992: 99). The shells of these species are white, pinkish or yellowish, are relatively small and with short variceal frondose spines. Both lecithotrophic and planctotrophic larval development are observed. "Group 7" currently includes *Chicoreus (Triplex) aculeatus* (Lamarck, 1822), *C. rossiteri* (Crosse, 1872), *C. nobilis*, *C. ryukyuensis* Shikama, 1978, *C. cloveri* Houart, 1985, *C. crosnieri* Houart, 1985, *C. fosterorum* Houart, 1989, *C. zululandensis* Houart, 1989, and *C. kantori* Houart and Héros, 2013 (here newly assigned to that group). *Chicoreus kaitomoei* new species was confused with *C. aculeatus* and *C. nobilis* in the recent literature. However, *C. kaitomoei* differs from both species by having a paucispiral, rounded protoconch (Figure 26) as opposed to a multispiral and conical protoconch with sinusigeral terminal lip in *C. aculeatus* (Figure 32) and *C. nobilis* (Figure 30) implying a planktotrophic larval development in both species, rather than lecithotrophic in *C. kaitomoei* new species The same different protoconch morphology and larval development separate *C. rossiteri* (Figure 35) from our new species. In addition, *C. kaitomoei* new species differs from *C. nobilis* (Figures 27–30) by having a comparatively smaller shell with shorter variceal spines, especially those extending from P1, P2, and P3, even in a short spined form of *C. nobilis* from the Coral Sea (Figure 29). The P6 spine is also obviously relatively longer and broader in *C. kaitomoei* new species while very short and narrow in *C. nobilis*. *Chicoreus kaitomoei* new species also differs from *C. nobilis* by having straight, abapically bent spines on the siphonal canal instead of



Figures 21–40. *Chicoreus* species. **21–26. *Chicoreus* (*Triplex*) *kaitomoei* new species. 21–25.** Fiji, southern Viti Levu, Suva area, drop off in 31–40 m. **21–23.** Holotype, MNHN 1M-2000-33592, 30.8 mm. **24–25.** Paratype CM, 32.8 mm. **26.** Paratype RH, protoconch, Fiji, Viti Levu, off Mbengga Island, 9 m, under coral rubble. **27–30.** *Chicoreus* (*Triplex*) *nobilis* Shikama, 1977. **27.** RH, Philippines, Cebu, Sogod, tangle nets, 43.4 mm. **28.** CM, Fiji, southern Viti Levu, Suva area, drop off in 31–40 m, 43.7 mm. **29.** RH, Coral Sea, 64 m, 41.6 mm. **30.** RH, protoconch, Papua New Guinea, Hansa Bay (Madang Province), Laing Island, 45 m. **31–32.** *Chicoreus* (*Triplex*) *aculeatus* (Lamarck, 1822). **31.** RH, Philippines, Balicasag Island, tangle nets, 51.2 mm. **32.** Protoconch, Philippines, Siargao Island. **33–35.** *Chicoreus* (*Triplex*) *rossiteri* (Crosse, 1872). **33–34.** RH, Philippines, Bohol, Panglao, RH, 47.5 mm. **35.** RH, protoconch, Philippines, Cebu Island. **36–37.** *Chicoreus* (*Triplex*) *ryukyuensis* Shikama, 1978. **36.** RH, Japan, Okinawa, Seragaki Reef, 40–50 m, 33.1 mm. **37.** RH, protoconch, Guam, Hospital Point, 14–17 m. **38–40.** *Chicoreus* (*Triplex*) *cloveri* Houart, 1985. Mauritius, paratype RH, 23.5 mm. Scale bars = 500 μm.

long, strongly adapically curved fronded spines in *C. nobilis*. *Chicoreus kaitomoei* new species further differs from *C. aculeatus* (Figures 31–32), a widely distributed species across the Indo-West Pacific, by having relatively broader varices with shorter variceal spines, lower intervariceal ribs (consisting usually of a single high node in *C. aculeatus*), and also by having shorter, more abapically bent canal spines. From *C. rossiteri* (Figures 33–35) it differs also by having distinct protoconch morphology and comparatively broader axial varices with shorter spines, 2 or 3 intervariceal ribs instead of a single, strong node in *C. rossiteri*, rarely with an additional low ridge, and by having a shorter siphonal canal with abapically bent spines at the lower part of the canal rather than long spines distributed over the whole length of the canal in *C. rossiteri*. *Chicoreus kaitomoei* new species differs from *C. ryukyuensis* (Figures 36–37) by having a lower spire, broader axial varices, narrower primary spiral cords and abapically bent spines on the lower part of the siphonal canal opposed to upward recurved spines in the whole length of the canal in *C. ryukyuensis*. Lastly, *C. kaitomoei* new species differs from *C. cloveri* (Figures 38–40), a species endemic to Mauritius and surrounding areas, by having a comparatively larger shell with broader axial varices, broader primary spiral cords and a broader, relatively shorter siphonal canal with more heavily abapically bent spines.

Etymology: Named after Kaito Eyvindr Moe, son of the second author, Christopher Moe, hoping to infuse in him an interest in malacology and marine science.

Japanese Name: "*Kaito-Senju*," カイトセンジュ, same etymology as above.

Chicoreus (*Triplex*) *aquilus* new species
(Figures 5–6, 41–43)

Description: Shell small for genus, 36.5 mm in length. Length/width ratio 2.0. Slender, lanceolate, broadly ovate, heavy, weakly spinose, and nodose. Subsutural ramp narrow, strongly sloping, convex.

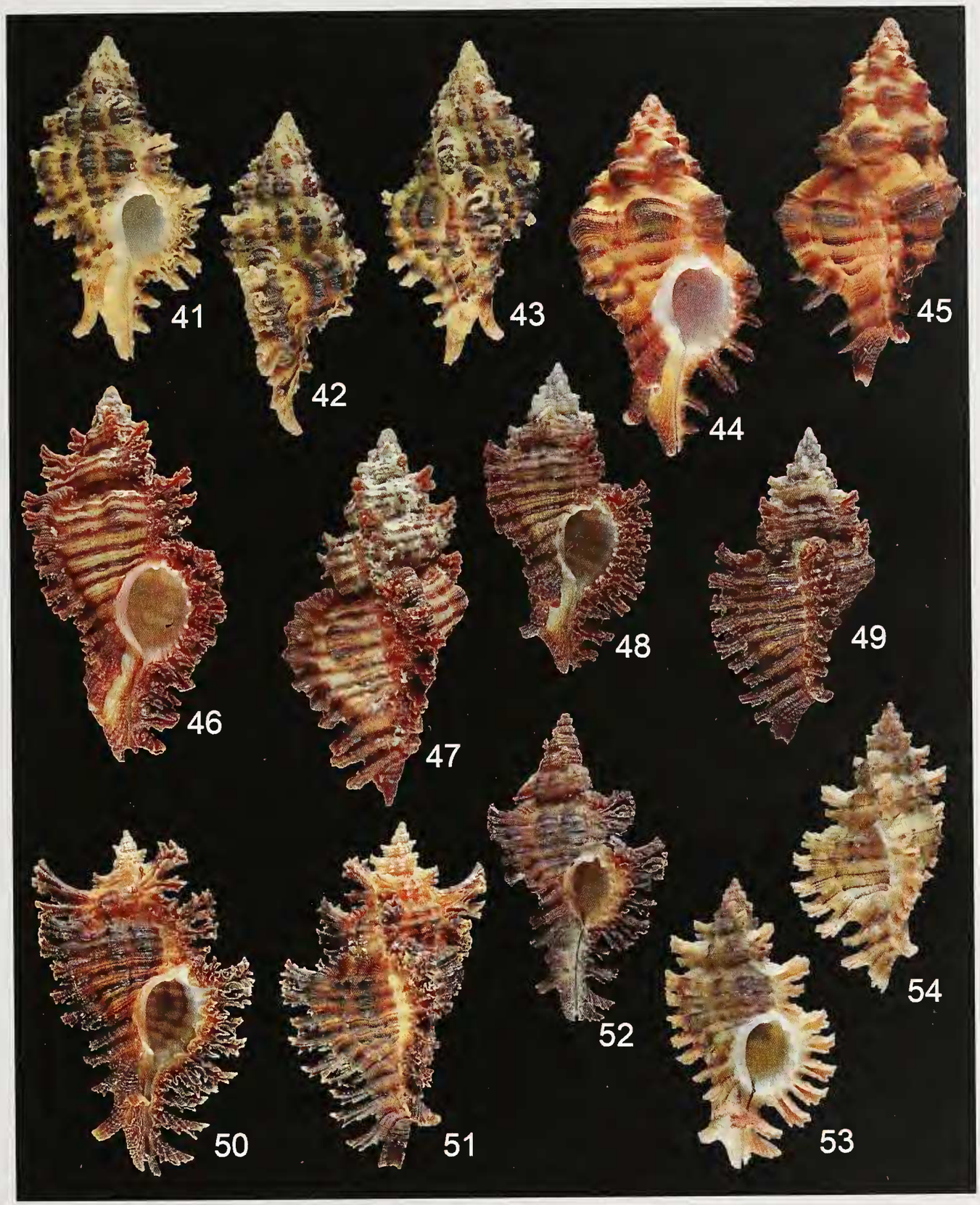
Light tan with black varices and axial ribs; additional black spots on spiral cords; ventral left part of siphonal canal light tan. Aperture white with pinkish narrow line on outer edge of columellar lip, extending to tip of siphonal canal. Spire high, acute. Teleoconch of 7 broad, weakly shouldered, nodose, weakly spinose whorls. Suture adpressed. Protoconch unknown (eroded). Axial sculpture consisting of high, strong, nodose ribs and varices. First two teleoconch whorls partly eroded. Third to last whorl with narrow, weakly spinose varices and two broad, nodose axial ribs, extending from the suture. A third, smaller rib, close to succeeding varix. Spiral sculpture of high, rounded, narrow, nodose primary cords, narrow secondary cords, and a few obsolete tertiary cords or lirae. Third to penultimate whorl with adis, IP, and visible P1–P3. Last whorl with adis, IP, P1, P2, P3, s3, P4, P5, P6, s6, t, ADP, MP and ABP. Primary cords giving rise to short, frondose spines. P1–P3 of similar strength, P1 with somewhat longer spine; P4 and P5 broader with longer spines; P6 narrow with very short spine. ADP and MP spines short, less frondose than other spines, ABP shallow. Aperture relatively small, roundly ovate. Columellar lip narrow with strong folds abapically and strong parietal tooth at adapical extremity. Rim adherent. Anal notch moderately deep, broad. Outer lip weakly erect, crenulated, with 6 strong, elongate denticles within: ID, D1–D5. Siphonal canal moderately short, 32% of shell length, broad, straight, weakly dorsally recurved at tip, narrowly open, tapered abapically, with 2 short spines extending from ADP and MP. Operculum unknown.

Type Material: **Holotype** MNHN IM-2000-33593, lv, ad (From type locality.)

Type Locality: Fiji, Viti Levu, Suva area, drop off in 31–40 m.

Distribution: Only known from the holotype, Fiji, Viti Levu, Suva area, living at 31–40 m.

Remarks: *Chicoreus* (*Triplex*) *aquilus* new species differs strongly from all known Indo-West Pacific *Triplex* species. However, a few of them have more or less close shell characters and may be compared with the new species. These all have a similar size, a narrow shell with a high spire, a moderately long siphonal canal and a small aperture. The closest species, *C. rubescens* (Broderip, 1833) (Figures 44–45) has a similar aperture, a moderately long siphonal canal and short variceal spines, and occurs in French Polynesia (type locality), Wallis, and New Caledonia. The apertures are strikingly similar, although relatively smaller in *C. aquilus*, both being roundly ovate, glossy white with a narrow columellar lip completely adherent to the shell, bearing a strong, elongate knob abapically, and a strong, broad parietal tooth adapically. The outer apertural lip is crenulated with strong, elongate denticles in both species. The siphonal canal also bears two short, abapically bent spines. However, *C. aquilus* differs from *C. rubescens* by having narrower axial varices with more strongly frondose spines, 2 or 3 intervariceal axial ribs instead of a single, broad rib in *C. rubescens* and less numerous spiral threads. In Houart (1992: 62) *C. rubescens* belongs to "group 2" with *C. microphyllus* (Lamarck, 1816), *C. strigatus* (Reeve, 1849), *C. paini* Houart, 1983 and *C. trivialis* (A. Adams, 1854). Of these species *C. aquilus* new species can only reasonably be compared additionally to *C. strigatus* and *C. paini*. The new species differs from *Chicoreus strigatus* (Figures 46–49) by having less obvious and less frondose variceal spines, more numerous, higher intervariceal ribs, broader primary spiral cords, a more rounded aperture with strong, thick, abapical folds (absent in *C. strigatus*), a stronger parietal tooth and a broader, shallower anal notch. The siphonal canal in *C. aquilus* new species is also straighter with a more tapered shape. *Chicoreus aquilus* new species also differs from *C. paini* (Figures 50–52) by having less obvious and



Figures 41–54. *Chicoreus* species. **41–43. *Chicoreus* (*Triplex*) *aquilus* new species.** Holotype, MNHN IM-2000-33593, Fiji, southern Viti Levu, Suva area, drop off in 31–40 m, 36.5 mm. **44–45.** *Chicoreus* (*Triplex*) *rubescens* (Broderip, 1833). RH, locality doubtful, in a collection lot of shells from Tahiti, Marquesas, and New Caledonia, 48 mm. **46–49.** *Chicoreus* (*Triplex*) *strigatus* (Reeve, 1849). **46–47.** RH, Japan, Ryukyu Islands, 51.1 mm. **48–49.** RH, Japan, Okinawa, Buckner Bay, under coral, 32.4 mm. **50–52.** *Chicoreus* (*Triplex*) *paini* Houart, 1983. **50–51**. RH, Palau, near Koror-Babeldaob bridge, 0.6–1.5 m, among silty rocks, 38.4 mm. **52.** Paratype RH, Solomon Islands, Honiara, 37.6 mm. **53–54.** *Chicoreus* (*Triplex*) *dodongi* Houart, 1995. RH, Philippines, Samar, Capul Island, 25 m, 30.6 mm.

frondose variceal spines, a different aperture and a straighter siphonal canal, which is more strongly tapered at the abapical extremity. *Chicoreus dodongi* Houart, 1995 (Figures 53–54) is here added to "group 2" in Houart (1992) and compared with *C. aquilus* new species; the new species differs by having less frondose varices, obviously lower and narrower intervariceal ribs, narrower primary spiral cords and a comparatively longer and more strongly abapically tapered siphonal canal.

Etymology: Latin *aquilus*, dark colored, blackish, naming after the particular and distinctive color of the holotype.

Japanese Name: *"Kurozome-Senju,"* クロゾメセンジュ, with "kurozome" meaning "stained in black".

ACKNOWLEDGMENTS

We are grateful to Virginie Héros (Muséum national d'Histoire, naturelle, Paris, France) and Bertrand Richer de Forges, IRD, Nouméa, New Caledonia, for information about SUVA 2 and SUVA 4 cruises in the Fijian Archipelago and to Virginie Héros and Philippe Maestrati (MNHN) for the loan of material. We thank also Scott Johnson for his generous contribution of both specimens and collection information on the specimens he found in Kwajalien Atoll. Finally, we are very thankful to the reviewers, M.G. (Jerry) Harasewych and Yuri Kantor for their useful comments, which helped improve the article, and for additional comments from Paul Callomon about the Japanese names.

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